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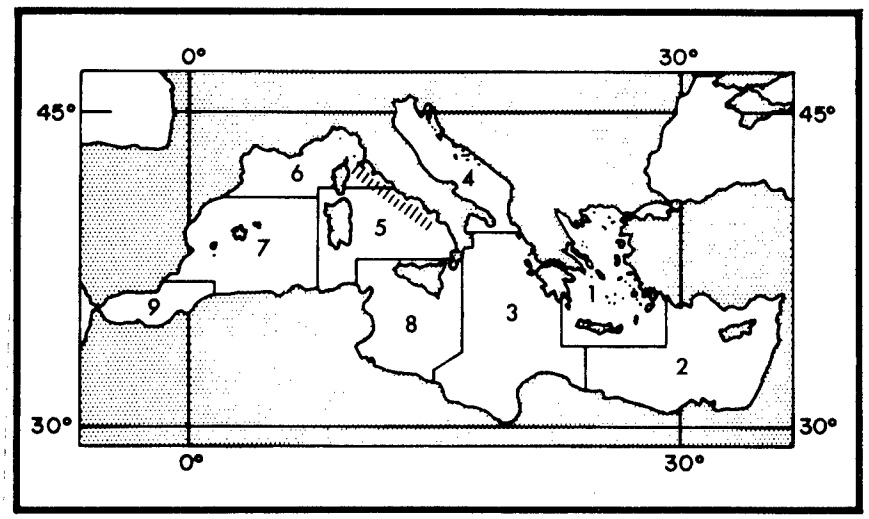
IR NO. 69-18

INFORMAL REPORT

PROJECT FLOOD DATA REPORT
TYRRHENIAN SEA
OCTOBER 1966



MARCH 1969

NAVAL OCEANOGRAPHIC OFFICE
WASHINGTON, D. C. 20390

INFORMAL REPORT

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ABSTRACT

Mine Division 81 collected oceanographic data in the Tyrrhenian Sea from 18 to 21 October 1966 in support of Project FLOOD. The data included serial-depth temperatures and salinities at 36 stations, 31 bottom sediment samples, 10 water transparency and color observations, and 300 miles of bathymetric soundings.

An evaluation of the data showed that a substantial amount of good quality data was obtained by Mine Division 81. These data are a useful contribution to the knowledge of the marine environment of the Tyrrhenian Sea and will be available to agencies and institutions through the National Oceanographic Data Center.

ATWOOD S. BARWICK
Nearshore Surveys Division
Oceanographic Surveys Department

This report has been reviewed and is approved for release as an UNCLASSIFIED Informal Report.

L. B. BERTHOLF
Director, Nearshore Surveys Division

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I. INTRODUCTION

A. Purpose.

This report presents Project FLOOD oceanographic data collected by Mine Division 81 in October 1966 (Operation Number 927013). Survey operations were conducted along the coast of Italy in the Tyrrhenian Sea. Mine Division 81 consisted of USS VALOR (MSO 472), USS VIGOR (MSO 473), USS VITAL (MSO 474), and USS ASSURANCE (MSO 521). ASSURANCE did not participate in the FLOOD operations. This FLOOD report is one of a continuing series that began with IMR 0-30-63 (Underwood, 1963) which contained the oceanographic data collected by several mine divisions between May 1961 and July 1962.

The FLOOD reports serve the following purposes: 1) As a vehicle for communicating FLOOD data to prospective users, 2) as an evaluation of the data and collecting methods, and 3) to focus the attention of future participating ships on common errors made in collecting and recording oceanographic data.

B. Background.

Project FLOOD (FLeet Observation of Oceanographic Data) was established in 1960 as a means of developing the latent oceanographic survey potential of the U.S. Navy. To date, the Project FLOOD effort has been confined to the Mine Forces. Through the cooperation of Commander Mine Forces, U.S. Atlantic Fleet, and Commander Mine Forces, U.S. Pacific Fleet, all minesweepers deploying to foreign areas are equipped with oceanographic instruments, and the ship's crews are trained in their use. In the Mediterranean Sea, Commander, Sixth Fleet, frequently schedules survey operational periods for Mine Divisions, such as MINEDIV 81, while they are under his control. Whenever possible, technical advisors are made available by NAVOCEANO to assist the mine divisions during these scheduled survey periods. The ships are encouraged, however, to collect data whenever the opportunity arises. Two oceanographers, one each on VALOR and VIGOR, accompanied MINEDIV 81 during the October 1966 survey.

C. Data Acquisition Plan.

The procedures employed by MINEDIV 81 for developing the survey plan were set forth in a preliminary draft of "Technical Specifications and Guidelines, Project FLOOD" (NAVOCEANO, rev. 1967). In the specifications, the Mediterranean Sea is divided into nine regions as shown in Figure 1. MINEDIV 81 operated in Regions 5 and 6 during October 1966. VALOR, VIGOR, and VITAL were assigned particular station locations so that the ships could operate independently of each other.

The ships departed Naples, Italy, on 18 October, and ocean stations and bottom grab samples were taken at approximately 6-mile intervals

along the Italian coast from Naples to Isola di Grannuti. These operations were completed on 19 October and were followed by a brief bathymetric survey in the northeastern part of the Tyrrhenian Sea. Additional ocean stations and bottom grab samples subsequently were taken between 42°N latitude and Elba Island. The ocean stations included serial-depth temperature measurements from reversing thermometers and/or bathythermographs (BT's), serial-depth water samples for salinity analysis, and, on selected stations, visibility observations. Operations were completed on 21 October, and the ships proceeded to San Remo, Italy. A total of 36 ocean stations was occupied, 14 by VALOR, 15 by VIGOR, and 7 by VITAL. VITAL also took 14 BT's prior to the survey in transit to Naples.

The locations of the ocean stations, bottom grab samples, and visibility observations are shown in Figures 2 through 4, respectively. The oceanographic equipment on the ships consisted of mechanical BT's, Nansen bottles (lowered from the BT winch), Dietz-LaFond or Orange Peel bucket samplers, Secchi discs, Forel scales, and (on VALOR and VIGOR) reversing thermometers.

II. RESULTS

A. Data Inventory.

The oceanographic data reported taken by MINEDIV 81 consisted of the following:

62	Bathythermograms
122	Reversing thermometer temperatures
146	Water samples for salinity analysis
31	Bottom grab samples
10	Secchi disc/Forel scale observations
130	Miles bathymetric data

Of these data, the following were received in acceptable condition:

		Percent Accepted
50	Bathythermograms	81
118	Reversing thermometer temperatures	97
142	Water samples	97
31	Bottom grab samples	100
10	Secchi disc/Forel scale observations	100
130	Miles bathymetric data	100

The serial-depth temperature and salinity values were computer processed at NAVOCEANO. Machine listings provided electrical conductivity, density (sigma-t), and sound velocity determinations for each depth. The computer-processed station data sheets are presented in Appendix A.

The bottom grab samples were analyzed at NAVOCEANO for sediment size and composition. Computer-processed data sheets of these analyses are presented in Appendix B.

The Secchi disc and Forel scale visibility observations are presented in Appendix C.

The BT data were processed at the National Oceanographic Data Center (NODC) and are on file at NODC under the following reference numbers: 08342 and 08343 (VITAL), 08477 (VIGOR), and 08478 (VALOR).

The bathymetric data are on file at NAVOCEANO, and the data will be used to update existing bathymetric charts of the Tyrrhenian Sea.

B. Quality Control.

During the processing and analyzing of FLOOD data, the precision of the data is determined, and erroneous values are rejected.

1. Water Sample Data. Water samples were carefully analyzed for salinity at NAVOCEANO. With good laboratory technique, present salinity analysis methods give accuracies of $\pm$0.01 parts per thousand (o/oo) or better. The greatest potential sources of error result from the contamination of the water sample by residual salt in an improperly rinsed bottle and by salinity increase through water evaporation. These errors are difficult to detect unless they are large. However, as a check for salinity errors, the salinity values were plotted against the corresponding temperature values at the same depth. An ocean area usually has a well-defined Temperature-Salinity relationship, and anomalous values can be easily identified and checked. Additional checks were made with the computer calculated sigma-t values, and any density inversions were examined. The anomalous salinities from the October 1966 FLOOD cruise which could not be explained are identified in Appendix A with question marks.

2. Temperature Data. The reversing thermometer data from VIGOR and VALOR were the most accurate and were helpful in assigning accuracy values to the BT temperatures from all three ships. Three reversing thermometers were used on each Nansen bottle, and the resulting temperatures were averaged to obtain an accepted value, except in cases of obvious malfunctions. The deviation of the individual value from the accepted value did not exceed 0.02°C for 92 percent of the cases.

BT data from VALOR were corrected to the reversing thermometer data, and comparisons in isothermal layers above and below the thermocline showed good repeatability with the BT's. BT data from VIGOR differed from the reversing thermometer data only near the sea surface and by a fairly constant amount. The BT's on VIGOR and VITAL, therefore, were checked against the corrected VALOR BT by grouping the data from all three BT's in a temporal/geographical order, i.e., as the

ships alternately made BT lowerings, and by obtaining the differences between successive BT observations at 50 and 300 feet (isolayers). Because the differences between each pair of BT's showed distinct trends, the VIGOR and VITAL data were corrected to agree with the VALOR BT data and were assigned accepted accuracies. These accepted accuracies were based on a comparison with the VALOR BT data plus the accepted accuracy limits of the VALOR BT data.

3. Bottom Grab Samples. The bottom grab samples were analyzed for sediment size and composition at NAVOCEANO in accordance with the techniques given by Richards (1962).

4. Water Transparency and Color Data. The only quality control applied to the Secchi disc and Forel scale data was to check the recorded positions of the readings against other data logs for the same station locations. Heavers (1967) observed that, on the average, water color may differ by ± 1 unit when estimated by different observers.

III. REVIEW

On the whole, the quality of the data collected by MINEDIV 81 was very good. VITAL and VALOR each made one error in entering latitude on a Secchi disc observation. Although precise position data is only critical for bottom sediment data, care should be exercised in picking coordinates from charts to avoid data being rejected because of faulty position information.

A 1° shift in the calibration of the BT on VALOR in the middle of the survey suggests that the stylus may have been bent accidentally during removal of a slide or from the BT being exposed to direct sunlight which can cause a BT to overheat and "peg" its stylus.

BT slides from VALOR and VIGOR were scratched but not too seriously. Care always should be exercised in handling the slides because the staballoy coatings on the slides can be easily scratched or smudged.

VIGOR and VITAL provided BT calibration slides; VALOR did not. However, the calibration data taken by VIGOR and VITAL before and after the survey period differed in both instances and could not be used to correct the BT's. During future deployments, ships are urged to make as many bucket calibrations as possible so that enough data are available to determine whether the BT calibration actually changed or whether an error was made in making the calibration.

In some instances, differences occurred between the water depths and positions recorded with the BT data from those recorded with the water sample data. These differences, however, may have been due to ship drift between the times when the different observations were made.

By discussing the errors that occurred in the collection and reporting of the data, future observers can be made aware of previous mistakes and, therefore, can avoid making the same errors.

IV. SUMMARY

The amount of useful environmental data collected by MINEDIV 81 was impressive and will make a useful contribution to knowledge of the ocean environment of the Tyrrhenian Sea. Project FLOOD environmental data are used in the preparation of various data sheets, pilots, atlases, sailing directions, and other publications and instructions. The data will be available to agencies and institutions through the National Oceanographic Data Center.

The data in the Appendixes have been checked for errors, and, where possible, an evaluation of accuracy was made.

The real and potential sources of error in data collection are discussed for the benefit of future participating ships.

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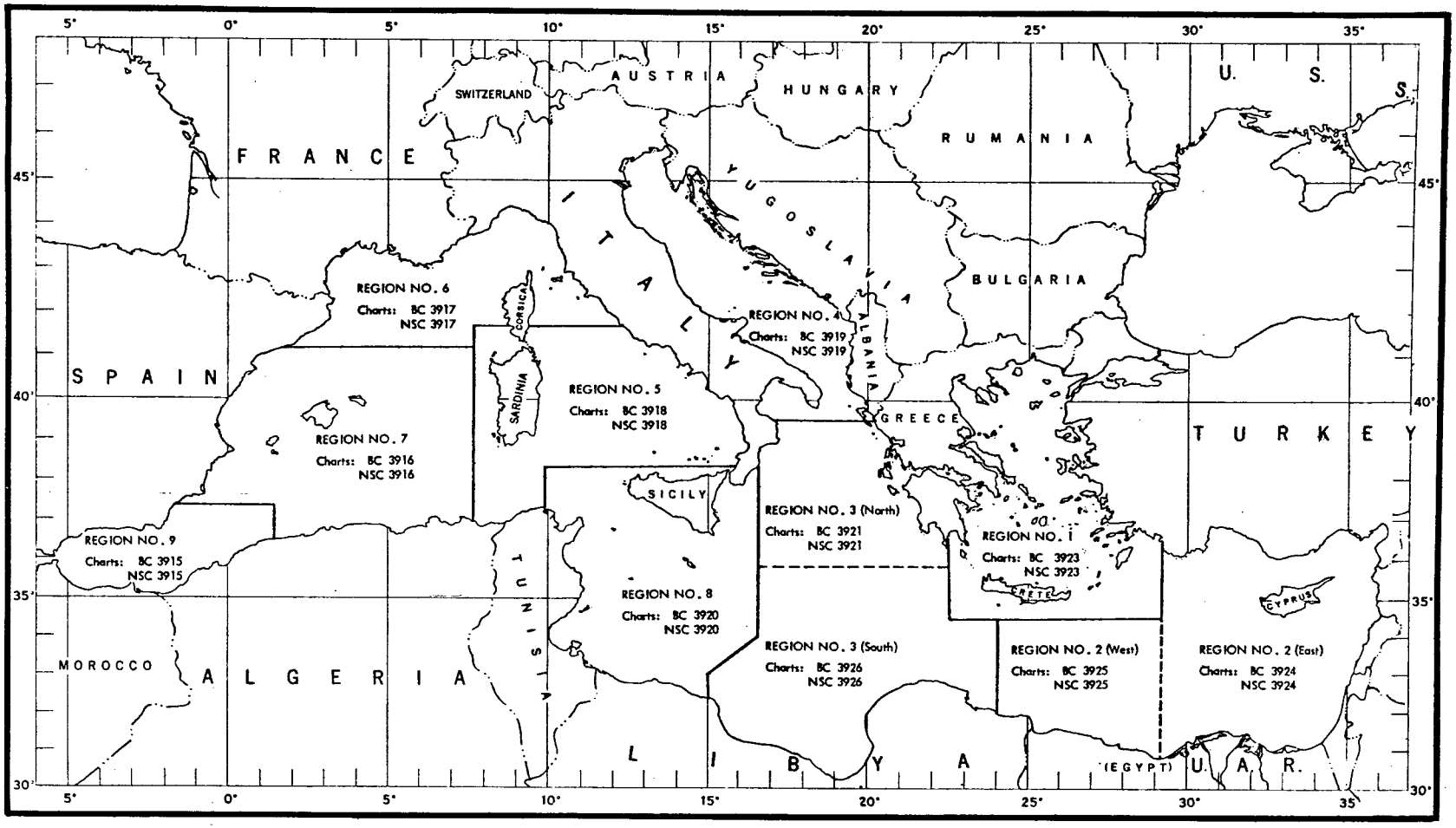

Figure 1. Project FLOOD Survey Regions – Mediterranean Sea

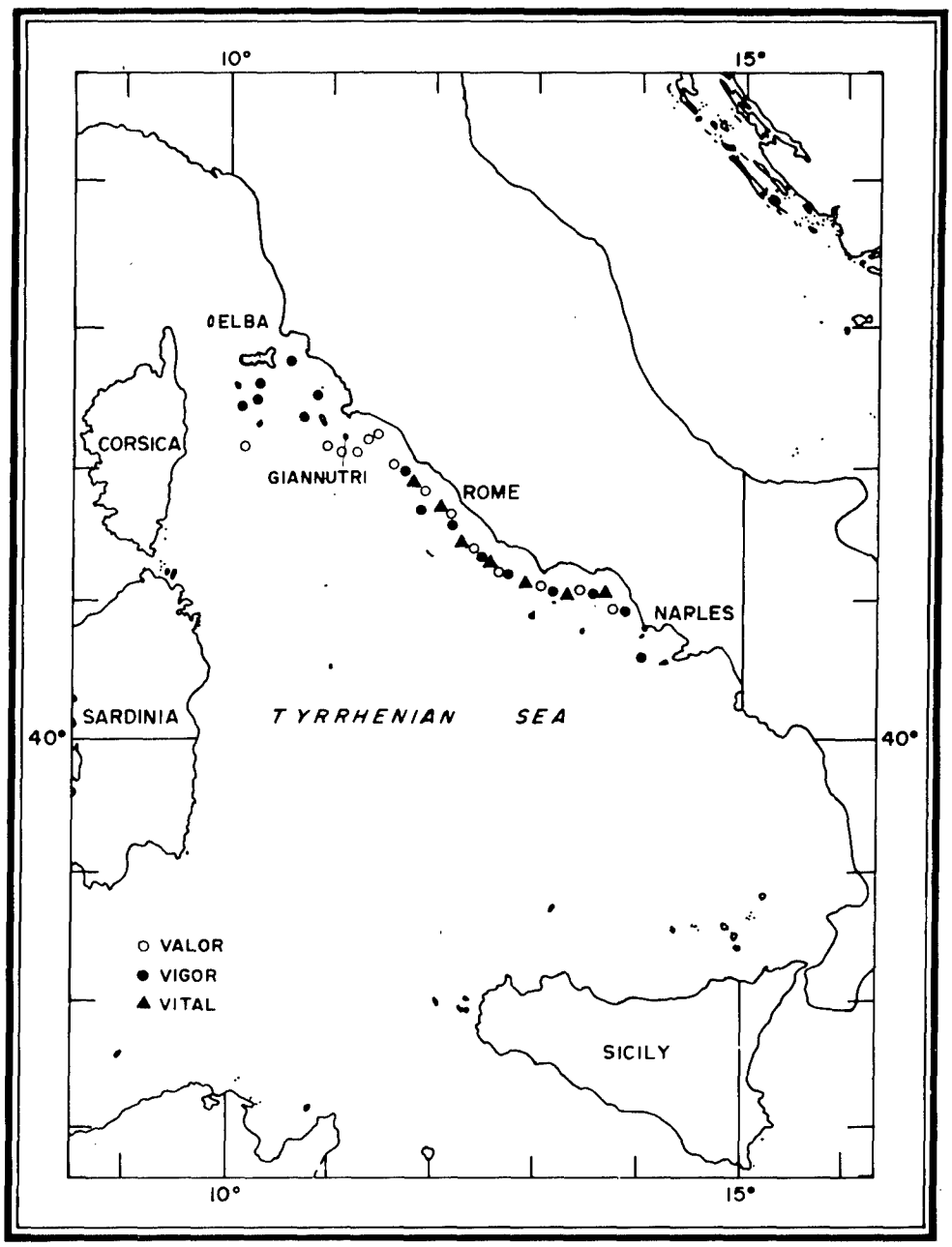

Figure 2. Oceanographic Station Locations

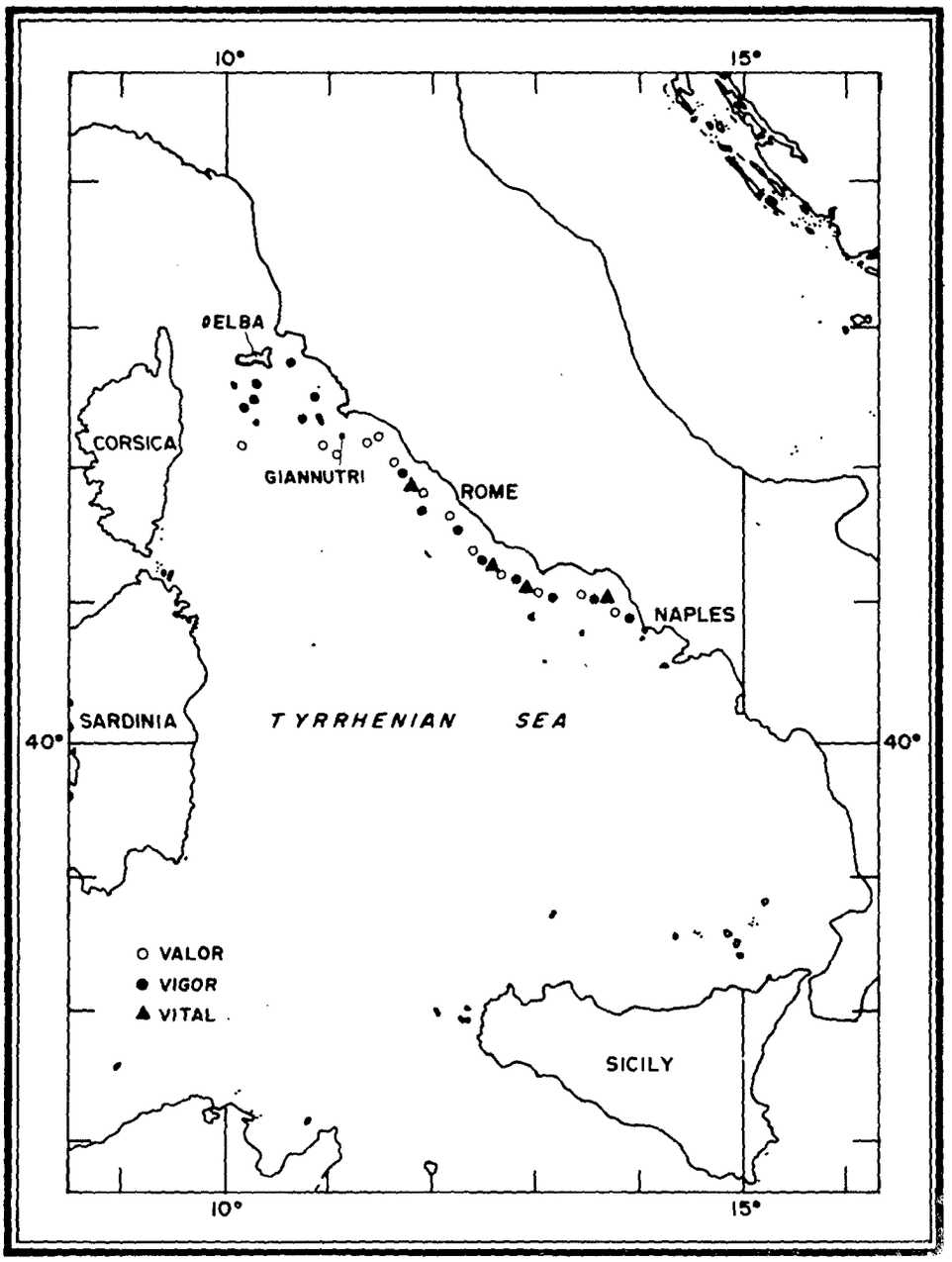

Figure 3. Bottom Sediment Sample Locations

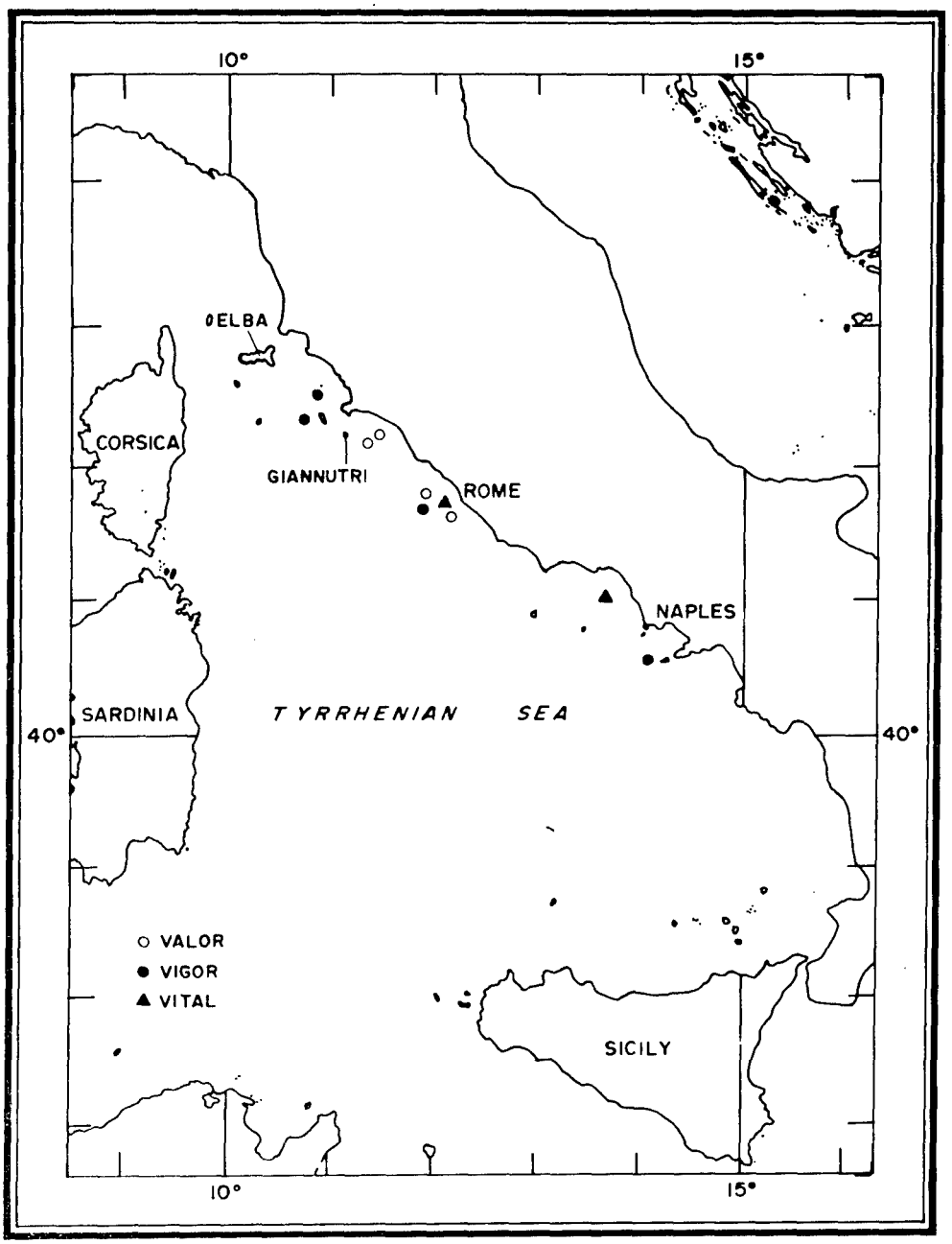

Figure 4. Water Transparency and Color Observations locations

APPENDIX A

Oceanographic Station Data

EXPLANATION OF COMPUTER DATA SHEET
OCEANOGRAPHIC STATION DATA

1. CRUISE. A number assigned to each cruise for identification purposes. The first two digits are the mine division number, the next three digits are the ship's hull number, and the last digit is the end digit of the year.

2. STATION. The station identification consists of an area abbreviation (MED= Mediterranean Sea), a region number (in the Mediterranean Sea as given in Project FLOOD specifications manual), and a consecutive station number for the cruise (different for each ship).

3. LATITUDE. Expressed in degrees, minutes, and tenths of minutes.

4. LONGITUDE. Expressed in degrees, minutes, and tenths of minutes.

5. MARSDEN SQUARE. A 10-degree geographical square used for cataloging data.

6. DATE. Day, month, and year when data were taken.

7. TIME. Time of day when data were taken in local time.

8. ZONE. Time zone for converting local time to GMT.

9. DEPTH. Depth of water in meters where station was taken.

10. AIR TEMP. Temperature of the air in °F when station was taken.

11. TEMP INSTR. Type of temperature recording instrument used for collecting the water temperatures (RTH= reversing oceanographic thermometer, MBT= mechanical bathythermograph).

12. SAL INSTR. Type of instrument used to obtain salinity samples of water (NAN= Nansen bottle).

13. DEPTH. Depth in meters at which each temperature and salinity sampling was made.

14. DEV. The ± range of depth over which actual sampling depth may deviate from given sampling depth.

15. TEMP. Water temperature in °C at each sampling depth.

16. DEV. The ± range of temperature over which actual temperature may deviate from given temperature value.

17. SALINITY. Water salinity in parts per thousand at each sampling depth.

18. DEV. The ± range of salinity over which actual salinity may deviate from the given value.

19. ELEC. COND. The electrical conductivity of the water in mhos/cm^2 calculated from the values of temperature and salinity with the empirical equation of Ribe and Howe, "An Empirical Equation Relating Sea Water Salinity, Temperature, Pressure, and Electrical Conductivity."

20. DEV. The ± range of electrical conductivity over which the actual conductivity may deviate from the given value, computed from the deviations of temperature and salinity.

21. SIGMA-T. An abbreviated expression for density (density= Sigma-t/ 1000 + 1) g/cm^6 calculated with the equation of Knudsen using the given temperature and salinity values.

22. DEV. The ± range of Sigma-t over which the actual Sigma-t may deviate from the given value, computed from the deviations of temperature and salinity.

23. SOUND VEL. The velocity of sound in sea water at each depth, in meters per second, calculated from the given values of depth, temperature, and salinity using Wilson's equations of 1960, NAVOCEANO Special Publication 58, "Tables of Sound Speed in Sea Water."

24. DEV. The ± range of sound velocity over which the actual sound velocity may deviate from the given value, computed from the deviations of depth, temperature, and salinity.

OCEANOGRAPHIC STATION DATA - VALOR

CRUISE 814726 STATION MED 5 1 LATITUDE 40 55.9 N LONGITUDE 13 44.9 E MARSDEN SQUARE 179

DATE 18 OCT 66 TIME 1513 ZONE -1 DEPTH 80 AIR TEMP 72.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.4	0.02	37.67	0.01	0.0538	0.0000	26.14	0.00	1531.6	0.11
14.	3.00	22.6	0.30	38.02	0.01	0.0544	0.0003	26.37	-0.08	1532.6	0.81
42.	3.00	16.0	0.02	37.81	0.01	0.0470	0.0000	27.93	0.00	1514.6	0.12
70.	3.00	15.0	0.02	37.85	0.01	0.0460	0.0000	28.18	0.00	1512.2	0.12

CRUISE 814726 STATION MED 5 2 LATITUDE 41 3.8 N LONGITUDE 13 24.9 E MARSDEN SQUARE 179

DATE 18 OCT 66 TIME 2104 ZONE -1 DEPTH 240 AIR TEMP 69.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.5	0.01	38.00	0.01	0.0543	0.0000	26.36	0.00	1532.3	0.09
21.	3.00	22.5	0.01	38.01	0.01	0.0543	0.0000	26.37	0.00	1532.6	0.09
55.	3.00	15.4	0.01	37.87	0.01	0.0464	0.0000	28.12	0.01	1512.9	0.09
216.	3.00	14.3	0.01	38.62	0.01	0.0461	0.0000	28.94	0.01	1513.1	0.09

CRUISE 814726 STATION MED 5 3 LATITUDE 41 4.6 N LONGITUDE 13 0.8 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 0020 ZONE -1 DEPTH 150 AIR TEMP 69.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.2	0.01	37.91	0.01	0.0538	0.0000	26.40	0.00	1531.2	0.09
30.	3.00	20.5	0.01	37.89	0.01	0.0519	0.0000	26.86	0.00	1527.3	0.09
75.	3.00	14.3	0.01	37.94	0.01	0.0454	0.0000	28.41	0.01	1510.1	0.09
135.	3.00	14.1	0.01	38.29	0.01	0.0455	0.0000	28.72	0.01	1510.8	0.09

CRUISE 814726 STATION MED 5 4 LATITUDE 41 12.3 N LONGITUDE 12 38.1 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 0350 ZONE -1 DEPTH 160 AIR TEMP 72.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.1	0.01	37.94	0.01	0.0538	0.0000	26.44	0.00	1531.1	0.09
27.	3.00	20.8	0.01	37.90	0.01	0.0523	0.0000	26.78	0.00	1528.1	0.09
41.	3.00	16.6	0.01	37.82	.01	0.0476	0.0000	27.80	0.01	1516.4	0.09
145.	3.00	14.1	0.01	38.29	.01	0.0455	0.0000	28.73	0.01	1510.9	0.09

CRUISE 814726 STATION MED 5 5 LATITUDE 41 23.3 N LONGITUDE 12 20.9 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 0705 ZONE -1 DEPTH 155 AIR TEMP 73.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.1	0.02	38.01	0.01	0.0539	0.0000	26.49	0.00	1531.2	0.11
21.	3.00	22.1	0.02	37.83	0.01	0.0536	0.0000	26.37	0.00	1531.2	0.11
34.	3.00	17.7	0.02	38.69?	.01	0.0498	0.0000	28.20	0.00	1520.5	0.12
145.	3.00	14.1	0.02	37.82?	0.01	0.0450	0.0000	28.36	0.00	1510.5	0.13

CRUISE 814726 STATION MED 5 6 LATITUDE 41 38.5 N LONGITUDE 12 8.7 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 0950 ZONE -1 DEPTH 150 AIR TEMP 72.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.0	0.02	37.90	0.01	0.0536	0.0000	26.44	0.00	1530.8	0.11
24.	3.00	19.2	0.02	37.86	0.01	0.0505	0.0000	27.18	0.00	1523.6	0.12
55.	3.00	14.5	0.02	37.96	0.01	0.0455	0.0000	28.39	0.00	1510.2	0.13
134.	3.00	14.1	0.02	38.34	0.01	0.0456	0.0000	28.76	0.00	1511.0	0.13

CRUISE 814726 STATION MED 6 7 LATITUDE 41 49.4 N LONGITUDE 11 52.8 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 1230 ZONE -1 DEPTH 250 AIR TEMP 73.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	21.9	0.02	37.66	0.01	0.0532	0.0000	26.28	0.00	1530.3	0.11
26.	3.00	22.1	0.02	37.84	0.01	0.0536	0.0000	26.37	0.00	1531.3	0.11
47.	3.00	19.7	0.02	37.88	0.01	0.0511	0.0000	27.04	0.00	1525.6	0.12
191.	3.00	14.2	0.02	38.67	0.01	0.0461	0.0000	28.99	0.00	1512.6	0.13

CRUISE 814726 STATION MED 6 8 LATITUDE 42 0.6 N LONGITUDE 11 34.9 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 1621 ZONE -1 DEPTH 205 AIR TEMP 74.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	21.9	0.03	37.68	0.01	0.0532	0.0000	26.30	-0.00	1530.3	0.14
34.	3.00	22.1	0.03	37.96	0.01	0.0538	0.0000	26.45	-0.00	1531.7	0.14
58.	3.00	15.7	0.03	37.90	0.01	0.0468	0.0000	28.06	0.00	1514.2	0.15
172.	3.00	14.0	0.03	38.40	0.01	0.0456	0.0000	28.82	0.00	1511.4	0.16

CRUISE 814726 STATION MED 6 9 LATITUDE 42 13.0 N LONGITUDE 11 26.8 E MARSDEN SQUARE 179

DATE 20 OCT 66 TIME 1135 ZONE -1 DEPTH 110 AIR TEMP 73.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.0	0.02	37.89	0.01	0.0536	0.0000	26.42	0.00	1530.9	0.11
38.	3.00	22.0	0.02	37.88	0.01	0.0535	0.0000	26.44	0.00	1531.3	0.11
99.	3.00	14.1	0.02	38.05	0.01	0.0452	0.0000	28.55	0.00	1509.8	0.13

CRUISE 814726 STATION MED 6 10 LATITUDE 42 10.8 N LONGITUDE 11 20.4 E MARSDEN SQUARE 179

DATE 20 OCT 66 TIME 1402 ZONE -1 DEPTH 135 AIR TEMP 74.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.1	0.02	37.86	0.01	0.0537	0.0000	26.38	0.00	1531.0	0.11
44.	3.00	22.0	0.02	37.90	0.01	0.0536	0.0000	26.43	0.00	1531.6	0.11
59.	3.00	17.0	0.02	37.90	0.01	0.0482	0.0000	27.76	0.00	1518.0	0.12
116.	3.00	14.0	0.02	38.17	0.01	0.0453	0.0000	28.66	0.00	1509.9	0.13

CRUISE 814726 STATION MED 6 11 LATITUDE 42 5.2 N LONGITUDE 11 13.4 E MARSDEN SQUARE 179

DATE 20 OCT 66 TIME 1620 ZONE -1 DEPTH 212 AIR TEMP 70.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	21.9	0.03	37.86	0.01	0.0535	0.0000	26.43	-0.00	1530.5	0.14
34.	3.00	21.9	0.03	37.89	0.01	0.0535	0.0000	26.45	-0.00	1531.1	0.14
90.	3.00	14.2	0.03	37.99	0.01	0.0454	0.0000	28.46	0.00	1510.2	0.16
207.	3.00	14.2	0.03	38.60	0.01	0.0459	0.0000	28.95	0.00	1512.6	0.16

CRUISE 814726 STATION MED 6 12 LATITUDE 42 6.2 N LONGITUDE 11 4.8 E MARSDEN SQUARE 179

DATE 20 OCT 66 TIME 1810 ZONE -1 DEPTH 220 AIR TEMP 73.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.0	0.03	37.90	0.01	0.0536	0.0000	26.45	-0.00	1530.7	0.14
28.	3.00	22.0	0.03	37.86	0.01	0.0535	0.0000	26.42	-0.00	1531.1	0.14
56.	3.00	14.9	0.03	37.91	0.01	0.0460	0.0000	28.26	0.00	1511.6	0.16
190.	3.00	14.1	0.03	38.54	0.01	0.0459	0.0000	28.91	0.00	1512.2	0.16

CRUISE 814726 STATION MED 6 13 LATITUDE 42 8.6 N LONGITUDE 10 56.9 E MARSDEN SQUARE 179

DATE 20 OCT 66 TIME 2013 ZONE -1 DEPTH 290 AIR TEMP 72.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	21.8	0.03	37.87	0.01	0.0533	0.0000	26.48	-0.00	1530.2	0.14
33.	3.00	18.0	0.03	37.86	0.01	0.0492	0.0000	27.47	0.00	1520.6	0.15
108.	3.00	14.0	0.03	38.44	0.01	0.0455	0.0000	28.87	0.00	1510.1	0.16
259.	3.00	14.1	0.03	38.90	0.01	0.0462	0.0000	29.19	0.00	1513.7	0.16

CRUISE 814726 STATION MED 6 14 LATITUDE 42 8.8 N LONGITUDE 10 8.5 E MARSDEN SQUARE 179

DATE 21 OCT 66 TIME 0044 ZONE -1 DEPTH 240 AIR TEMP 68.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	20.4	0.03	37.94	0.01	0.0519	0.0000	26.91	-0.00	1526.7	0.14
17.	3.00	19.4	0.03	37.92	0.01	0.0508	0.0000	27.17	-0.00	1524.2	0.14
31.	3.00	15.7	0.03	37.86	0.01	0.0467	0.0000	28.04	0.00	1513.5	0.15
223.	3.00	14.1	0.03	38.54	0.01	0.0457	0.0000	28.93	0.00	1512.5	0.16

OCEANOGRAPHIC STATION DATA - VIGOR

CRUISE 814736 STATION MED 5 1 LATITUDE 40 33.7 N LONGITUDE 14 1.0 E MARSDEN SQUARE 179

DATE 18 OCT 66 TIME 1402 ZONE -1 DEPTH 155 AIR TEMP 75.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.7	0.03	37.92	.01	0.0544	0.0000	26.26	-0.00	1532.5	0.14

CRUISE 814736 STATION MED 5 2 LATITUDE 40 52.8 N LONGITUDE 13 51.5 E MARSDEN SQUARE 179

DATE 18 OCT 66 TIME 1658 ZONE -1 DEPTH 120 AIR TEMP 72.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.6	0.02	37.92	.01	0.0542	0.0000	26.30	0.00	1532.2	0.11
30.	3.00	16.2	0.02	37.79	.01	0.0494	0.0000	27.37	0.00	1521.1	0.12
45.	3.00	17.4	0.02	37.79	.01	0.0484	0.0000	27.58	0.00	1518.7	0.12
91.	3.00	15.4	0.02	37.82	.01	0.0464	0.0000	28.07	0.00	1513.2	0.12
107.	3.00	14.2	0.02	38.13	.01	0.0454	0.0000	28.59	0.00	1510.3	0.13

CRUISE 814736 STATION MED 5 3 LATITUDE 41 12.0 N LONGITUDE 13 32.6 E MARSDEN SQUARE 179

DATE 18 OCT 66 TIME 1940 ZONE -1 DEPTH 238 AIR TEMP 70.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.6	0.03	38.06	0.01	0.0545	0.0000	26.39	-0.00	1532.5	0.14
30.	3.00	22.6	0.03	38.00	0.01	0.0544	0.0000	26.35	-0.00	1532.8	0.14
45.	3.00	17.1	0.03	37.78	0.01	0.0482	0.0000	27.63	0.00	1518.1	0.15
77.	3.00	14.5	0.03	37.94	.01	0.0455	0.0000	28.37	0.00	1510.6	0.16

CRUISE 814736 STATION MED 5 4 LATITUDE 41 2.5 N LONGITUDE 13 8.5 E MARSDEN SQUARE 179

DATE 18 OCT 66 TIME 2310 ZONE -1 DEPTH 130 AIR TEMP 68.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
30.	3.00	18.7	0.03	37.96	0.01	0.0501	0.0000	27.37	-0.00	1522.6	0.15
46.	3.00	15.0	0.03	37.89	0.01	0.0461	0.0000	28.21	0.00	1511.7	0.16
76.	3.00	14.2	0.03	37.98	0.01	0.0453	0.0000	28.47	0.00	1509.8	0.16

CRUISE 814736 STATION MED 5 5 LATITUDE 41 10.1 N LONGITUDE 12 40.6 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 0250 ZONE -1 DEPTH 365 AIR TEMP 67.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.1	0.02	37.78	0.01	0.0535	0.0000	26.33	0.00	1530.9	0.11
28.	3.00	22.2	0.02	37.90	0.01	0.0538	0.0000	26.39	0.00	1531.7	0.11
40.	3.00	17.2	0.02	37.86	0.01	0.0484	0.0000	27.67	0.00	1518.3	0.12
79.	3.00	14.6	0.02	37.99	0.01	0.0458	0.0000	28.38	0.00	1511.2	0.13
264.	3.00	14.2	0.02	38.66	0.01	0.0461	0.0000	28.98	0.00	1513.9	0.13

CRUISE 814736 STATION MED 5 6 LATITUDE 41 19.3 N LONGITUDE 12 26.2 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 0620 ZONE -1 DEPTH 201 AIR TEMP 67.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	21.9	0.04	37.83	0.01	0.0534	0.0001	26.41	-0.00	1530.5	0.16
24.	3.00	20.6	0.04	37.89	0.01	0.0520	0.0001	26.83	-0.00	1527.5	0.17
30.	3.00	18.6	0.04	37.90	0.01	0.0499	0.0001	27.37	-0.00	1522.1	0.17
57.	3.00	14.5	0.04	37.90	0.01	0.0455	0.0001	28.34	-0.00	1510.3	0.19

CRUISE 814736 STATION MED 5 7 LATITUDE 41 33.5 N LONGITUDE 12 8.5 E MARSDEN SQUARE 179

DATE 19 OCT 65 TIME 0925 ZONE -1 DEPTH 229 AIR TEMP 72.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	21.9	0.02	37.76	0.02	0.0533	0.0000	26.38	0.01	1530.2	0.12
16.	3.00	21.8	0.02	37.77	.02	0.0533	0.0000	26.39	0.01	1530.5	0.12
30.	3.00	17.3	0.02	37.90	0.02	0.0485	0.0000	27.69	0.01	1518.4	0.13
74.	3.00	14.0	0.02	38.14	0.02	0.0455	0.0000	28.62	0.01	1509.4	0.14

CRUISE 814736 STATION MED 6 8 LATITUDE 41 40.8 N LONGITUDE 11 50.9 E MARSDEN SQUARE 179

DATE 19 OCT 65 TIME 1223 ZONE -1 DEPTH 228 AIR TEMP 70.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.0	0.02	37.54	.02	0.0531	0.0000	26.17	0.01	1530.3	0.12
15.	3.00	22.0	0.02	37.65	0.02	0.0533	0.0000	26.26	0.01	1530.7	0.12
30.	3.00	22.2	0.02	37.89	0.02	0.0538	0.0000	26.38	0.01	1531.7	0.12
59.	3.00	15.7	0.02	37.79	0.02	0.0467	0.0000	27.98	0.01	1513.9	0.14
191.	3.00	14.0	0.02	38.35	.02	0.0455	0.0000	28.78	0.01	1511.6	0.14

CRUISE 814736 STATION MED 6 9 LATITUDE 41 57.2 N LONGITUDE 11 41.0 E MARSDEN SQUARE 179

DATE 20 OCT 65 TIME 0320 ZONE -1 DEPTH 201 AIR TEMP 72.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	21.8	0.02	37.55	0.02	0.0530	0.0000	26.22	0.01	1529.9	0.12
37.	3.00	22.1	0.02	37.79	0.02	0.0535	0.0000	26.34	0.01	1531.4	0.12
57.	3.00	15.7	0.02	37.84	0.02	0.0467	0.0000	28.02	0.01	1514.0	0.14
86.	3.00	14.4	0.02	37.96	.02	0.0455	0.0000	28.41	0.01	1510.5	0.14
172.	3.00	14.0	0.02	38.28	0.02	0.0454	0.0000	28.74	0.01	1511.1	0.14

CRUISE 814736 STATION MED 6 10 LATITUDE 42 20.3 N LONGITUDE 10 43.5 E MARSDEN SQUARE 179

DATE 20 OCT 66 TIME 1152 ZONE -1 DEPTH 256 AIR TEMP 71.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	21.7	0.02	37.88	0.02	0.0533	0.0000	26.50	0.01	1530.0	0.12
35.	3.00	21.3	0.02	37.95	0.02	0.0529	0.0000	26.67	0.01	1529.7	0.12
44.	3.00	17.2	0.02	38.08?	0.02	0.0486	0.0000	27.84	0.01	1518.7	0.13
81.	3.00	14.4	0.02	37.92	0.02	0.0454	0.0000	28.38	0.01	1510.3	0.14
218.	3.00	14.0	0.02	38.49	0.02	0.0457	0.0000	28.89	0.01	1512.2	0.14

CRUISE 814736 STATION MED 6 11 LATITUDE 42 30.1 N LONGITUDE 10 50.5 E MARSDEN SQUARE 179

DATE 20 OCT 66 TIME 1340 ZONE -1 DEPTH 128 AIR TEMP 73.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	21.8	0.03	37.84	0.01	0.0533	0.0000	26.44	-0.00	1530.3	0.14
46.	3.00	21.6	0.03	37.93	0.01	0.0532	0.0000	26.57	-0.00	1530.6	0.14
64.	3.00	15.7	0.03	37.86	0.01	0.0468	0.0000	28.03	0.00	1514.1	0.15
91.	3.00	14.2	0.03	37.98	0.01	0.0453	0.0000	28.46	0.00	1510.1	0.16
122.	3.00	13.9	0.03	38.17	0.01	0.0452	0.0000	28.68	0.00	1509.8	0.16

CRUISE 814736 STATION MED 6 12 LATITUDE 42 44.0 N LONGITUDE 10 36.0 E MARSDEN SQUARE 179

DATE 20 OCT 66 TIME 1555 ZONE -1 DEPTH 101 AIR TEMP 73.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	21.8	0.03	37.69	0.01	0.0531	0.0000	26.35	-0.00	1529.9	0.14
42.	3.00	21.0	0.03	38.01	0.01	0.0527	0.0000	26.79	-0.00	1529.1	0.14
51.	3.00	17.8	0.03	37.85	0.01	0.0490	0.0000	27.51	0.00	1520.3	0.15
54.	3.00	16.9	0.03	37.88	0.01	0.0480	0.0000	27.77	0.00	1517.5	0.15
90.	3.00	14.3	0.03	37.97	0.01	0.0454	0.0000	28.43	0.00	1510.3	0.16

CRUISE 814736 STATION MED 6 13 LATITUDE 42 35.6 N LONGITUDE 10 17.5 E MARSDEN SQUARE 179

DATE 20 OCT 65 TIME 1806 ZONE -1 DEPTH 116 AIR TEMP 68.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	21.2	0.03	38.02	0.01	0.0529	0.0000	26.76	-0.00	1528.8	0.14
33.	3.00	21.1	0.03	38.08?	.01	0.0528	0.0000	26.84	-0.00	1529.1	0.14
66.	3.00	18.6	0.03	37.89	0.01	0.0499	0.0000	27.36	-0.00	1522.2	0.15
91.	3.00	15.4	0.03	37.85	0.01	0.0465	0.0000	28.09	0.00	1513.1	0.15
104.	3.00	13.9	0.03	38.06	0.01	0.0451	0.0000	28.59	0.00	1509.4	0.16

CRUISE 814736 STATION MED 6 14 LATITUDE 42 28.5 N LONGITUDE 10 15.1 E MARSDEN SQUARE 179

DATE 20 OCT 65 TIME 1938 ZONE -1 DEPTH 146 AIR TEMP 68.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	20.6	0.02	37.97	0.01	0.0522	0.0000	26.88	0.00	1527.3	0.11
27.	3.00	16.5	0.02	37.86	0.01	0.0476	0.0000	27.84	0.00	1516.0	0.12
45.	3.00	15.1	0.02	37.93	0.01	0.0462	0.0000	28.22	0.00	1512.2	0.12
72.	3.00	14.0	0.02	38.04	0.01	0.0452	0.0000	28.54	0.00	1509.3	0.13
124.	3.00	13.8	0.02	38.21	0.01	0.0451	0.0000	28.73	0.00	1509.5	0.13

CRUISE 814736 STATION MED 6 15 LATITUDE 42 25.0 N LONGITUDE 10 7.5 E MARSDEN SQUARE 179

DATE 20 OCT 65 TIME 2104 ZONE -1 DEPTH 80 AIR TEMP 68.0 TEMP INSTR RTH SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	20.9	0.02	37.97	0.01	0.0524	0.0000	26.81	0.00	1527.9	0.11
54.	3.00	14.4	0.02	37.97	0.01	0.0454	0.0000	28.42	0.00	1509.9	0.13

OCEANOGRAPHIC STATION DATA - VITAL

CRUISE 314746 STATION MED 5 1 LATITUDE 41 1.0 N LONGITUDE 13 39.0 E MARSDEN SQUARE 179

DATE 18 OCT 66 TIME 1512 ZONE -1 DEPTH 128 AIR TEMP 77.0 TEMP INSTR MBT SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.8	0.50	37.98	0.01	0.0546	0.0006	26.26	-0.14	1533.0	1.29
30.	3.00	22.6	0.50	37.99	0.01	0.0544	0.0006	26.33	-0.14	1532.9	1.30
57.	3.00	20.6	0.50	37.82	0.01	0.0519	0.0006	26.78	-0.13	1527.6	1.38
125.	3.00	13.9	0.50	38.15	0.01	0.0452	0.0005	28.65	-0.10	1510.0	1.67

CRUISE 814746 STATION MED 5 2 LATITUDE 41 1.0 N LONGITUDE 13 16.0 E MARSDEN SQUARE 179

DATE 18 OCT 66 TIME 2015 ZONE -1 DEPTH 155 AIR TEMP 69.0 TEMP INSTR MBT SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.4	0.50	37.94	0.01	0.0541	0.0006	26.34	-0.14	1531.9	1.31
24.	3.00	22.3	0.50	37.94	0.01	0.0540	0.0006	26.39	-0.14	1531.9	1.31
30.	3.00	18.6	0.50	37.62	0.01	0.0495	0.0005	27.15	-0.12	1521.7	1.46
79.	3.00	14.2	0.50	37.97	0.01	0.0453	0.0005	28.46	-0.10	1509.7	1.66

CRUISE 814746 STATION MED 5 3 LATITUDE 41 7.0 N LONGITUDE 12 53.0 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 0005 ZONE -1 DEPTH 165 AIR TEMP 69.0 TEMP INSTR MBT SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.1	0.50	38.05?	0.01	0.0539	0.0006	26.52	-0.14	1531.2	1.32
30.	3.00	22.1	0.50	38.10?	0.01	0.0539	0.0006	26.57	-0.14	1531.7	1.32
91.	3.00	14.0	0.50	37.82	0.01	0.0449	0.0005	28.38	-0.10	1509.2	1.66

CRUISE 814746 STATION MED 5 4 LATITUDE 41 16.0 N LONGITUDE 12 32.0 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 0307 ZONE -1 DEPTH 144 AIR TEMP 69.0 TEMP INSTR MBT SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.0	0.50	37.92	0.01	0.0536	0.0006	26.45	-0.14	1530.8	1.32
21.	3.00	21.8	0.50	37.93	0.01	0.0535	0.0006	26.51	-0.13	1530.7	1.33
88.	3.00	14.0	0.50	38.00	0.01	0.0451	0.0005	28.52	-0.10	1509.4	1.66

CRUISE 814746 STATION MED 5 5 LATITUDE 41 26.0 N LONGITUDE 12 15.0 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 0630 ZONE -1 DEPTH 159 AIR TEMP 69.0 TEMP INSTR MBT SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	21.8	0.50	37.76	0.01	0.0532	0.0006	26.40	-0.13	1530.1	1.33
15.	3.00	21.7	0.50	37.73	0.01	0.0531	0.0006	26.39	-0.13	1530.2	1.33
104.	3.00	13.9	0.50	38.20	0.01	0.0451	0.0005	28.71	-0.10	1509.3	1.67

CRUISE 814746 STATION MED 6 6 LATITUDE 41 41.0 N LONGITUDE 12 4.0 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 1110 ZONE -1 DEPTH 165 AIR TEMP 76.0 TEMP INSTR MBT SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.0	0.50	37.67	.01	0.0533	0.0006	26.26	-0.14	1530.5	1.32
21.	3.00	22.1	0.50	37.65	0.01	0.0534	0.0006	26.23	-0.14	1531.0	1.32
37.	3.00	15.9	0.50	37.65?	0.01	0.0468	0.0005	27.82	-0.11	1514.2	1.58
128.	3.00	13.8	0.50	37.92	0.01	0.0448	0.0005	28.51	-0.10	1509.2	1.67

CRUISE 814746 STATION MED 6 7 LATITUDE 41 52.0 N LONGITUDE 11 46.0 E MARSDEN SQUARE 179

DATE 19 OCT 66 TIME 1410 ZONE -1 DEPTH 165 AIR TEMP 77.0 TEMP INSTR MBT SAL INSTR NAN

DEPTH	DEV.	TEMP	DEV.	SALINITY	DEV.	ELEC. COND.	DEV.	SIGMA-T	DEV.	SOUND VEL.	DEV.
0.	3.00	22.0	0.50	37.86	0.01	0.0536	0.0006	26.41	-0.14	1530.7	1.32
34.	3.00	22.0	0.50	37.77	0.01	0.0534	0.0006	26.34	-0.14	1531.2	1.32
128.	3.00	13.8	0.50	38.12	0.01	0.0451	0.0005	28.65	-0.10	1509.6	1.67

APPENDIX B

Bottom Sediment Size and Composition Analyses

EXPLANATION OF COMPUTER DATA SHEET
SEDIMENT SIZE AND COMPOSITION

Results of sediment-size and -composition core analysis performed by the U. S. Naval Oceanographic Office Geological Laboratory are tabulated on Computer Data Sheet Sediment Size and Composition.

The following is an explanation of the terms employed on the Computer Data Sheet:

1. CRUISE. A number assigned to each cruise for identification purposes.

2. SAMPLE. A consecutive number applied to each core taken successively throughout the cruise.

3. LATITUDE. Expressed in degrees, minutes, and tenths of minutes.

4. LONGITUDE. Expressed in degrees, minutes, and tenths of minutes.

5. TAKEN. Date in month, day, and year that core was taken.

6. CORER TYPE. Number corresponding to sampling device code below.

1. Hydroplastic piston	6. Orange Peel
2. Hydroplastic gravity	7. Ewing
3. Kullenberg piston	8. Vibrocorer
4. Kullenberg gravity	9. Dredge
5. Phleger gravity	0. Other

7. LENGTH. Length of core recorded in centimeters as observed in the laboratory.

8. PENETRATION. Penetration of coring device recorded in centimeters as observed in the field.

9. DEPTH. The uncorrected sonic sounding recorded in meters.

10. ANALYZED. Date in month, day, and year that core was analyzed in the laboratory.

11. ID. NO. Three digit laboratory project number followed by consecutive number assigned to each subsample analyzed.

12. INTERVAL. Interval of subsample as measured in centimeters from the top of the core.

13. MM. Particle diameter size intervals based on Wentworth size grades in millimeters.

14. PER. Percent of total sample weight within the given size interval.

15. GRAVEL, SAND, SILT, CLAY. Percent of total sample weight within the four size classes.

Class ranges are: Gravel - coarser than 2 mm
Sand - 2 to 0.0625 mm
Silt - 0.0625 to 0.0039 mm
Clay - finer than 0.0039 mm

16. MEAN (MM). The geometric mean of the distribution expressed in millimeters.

17. MEAN (PHI). The logarithmic mean of the distribution expressed in phi units ($-\log_2$ of the diameter in millimeters).

18. STAN DEV. Standard deviation. A measure of the degree of spread or dispersion of the distribution about the mean expressed in phi units.

$$\sigma = \sqrt{\sum f (X_i - \bar{X})^2 / 100}$$

19. SKEWNESS. A measure of the asymmetry of the distribution. Positive values denote skewness of the distribution toward the fine particles, negative values denote skewness toward the coarse particles. A normal distribution has a skewness of 0.

$$\alpha_3 = \frac{1}{100} \sigma^{-3} \sum f (X_i - \bar{X})^3$$

20. KURTOSIS. A measure of the peakedness of the distribution. Positive values denote a "leptokurtic" distribution, or a distribution more "peaked" than normal. Negative values denote a "platykurtic" distribution, or a distribution more "flat" than normal. A normal curve has a kurtosis of 0.

$$\alpha_4 = \frac{1}{100} \sigma^{-4} \sum f (X_i - \bar{X})^4 - 3$$

21. $CACO_3$. Percent calcium carbonate of the total sample weight as determined by the insoluble residue method.

22. ORG CARBON. Percent organic carbon of the total sample weight as determined by the Allison method.

23. COLOR. Wet sediment color, based on the Geological Society of America Rock-Color Chart, as determined in the laboratory.

24. DOM MINERAL. Dominant mineral (s) comprising the sample assemblage.

25. SEC MINERAL. Secondary mineral (s) comprising the sample assemblage.

Cruise 814726
Corer Type 6
Sample 106
Latitude 41°3.8'N
Longitude 13°24.9
Length 0.0
Penetration 0.0
Depth 220.0
Taken 18/10/66
Analyzed 06/03/67

ID. NO.	306 13
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.408
0.1250	0.408
0.0625	0.000
0.0312	16.735
0.0156	0.000
0.0078	2.857
0.0039	12.245
0.0020	8.163
0.0010	14.694
0.0005	0.000
0.0000-	44.490
GRAVEL	0.000
SAND	0.816
SILT	31.837
CLAY	67.347
MEAN (MM)	0.0018
MEAN (PHI)	9.0796
STAN DEV	2.6601
SKEWNESS	-0.3634
KURTOSIS	-0.7627
CACO3	0.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814726
Corer Type 6
Sample 114
Latitude 42°6.2'N
Longitude 11°4.8'E
Length 0.0
Penetration 0.0
Depth 220.0
Taken 20/10/66
Analyzed 06/03/67

ID. NO.	306 1
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.249
1.0000	0.746
0.5000	3.731
0.2500	12.438
0.1250	12.935
0.0625	11.194
0.0312	19.652
0.0156	0.995
0.0078	2.239
0.0039	6.468
0.0020	9.453
0.0010	9.453
0.0005	0.000
0.0000-	10.448
GRAVEL	0.249
SAND	41.045
SILT	29.353
CLAY	29.353
MEAN (MM)	0.0239
MEAN (PHI)	5.3856
STAN DEV	3.3933
SKEWNESS	0.2049
KURTOSIS	-1.0570
CACO3	50.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814726
Corer Type 6
Sample 115
Latitude 42°0.6'N
Longitude 11°34.9'E
Length 0.0
Penetration 0.0
Depth 220.0
Taken 19/10/66
Analyzed 06/03/67

ID. NO.	306 2
INTERVAL	0.0- 0.0

MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.260
0.1250	0.260
0.0625	0.260
0.0312	19.271
0.0156	1.042
0.0078	3.906
0.0039	7.552
0.0020	9.375
0.0010	13.281
0.0005	0.000
0.0000-	44.792

GRAVEL	0.000
SAND	0.781
SILT	31.771
CLAY	67.448

MEAN (MM)	0.0020
MEAN (PHI)	8.9740
STAN DEV	2.7631
SKEWNESS	-0.3204
KURTOSIS	-1.0471

CACO3	30.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814726
Corer Type 6
Sample 117
Latitude 42°8.6'N
Longitude 10°56.9'E
Length 0.0
Penetration 0.0
Depth 305.0
Taken 20/10/66
Analyzed 06/03/67

ID. NO.	306 3
INTERVAL	0.0- 0.0

MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.240
0.2500	1.202
0.1250	1.683
0.0625	1.923
0.0312	18.750
0.0156	2.163
0.0078	4.567
0.0039	7.212
0.0020	11.538
0.0010	11.058
0.0005	0.000
0.0000-	39.663

GRAVEL	0.000
SAND	5.048
SILT	32.692
CLAY	62.260

MEAN (MM)	0.0027
MEAN (PHI)	8.5216
STAN DEV	2.9931
SKEWNESS	-0.2643
KURTOSIS	-1.0498

CACO3	37.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814726
Corer Type 6
Sample 130
Latitude 41°4.6'N
Longitude 13°0.8'E
Length 0.0
Penetration 0.0
Depth 150.0
Taken 18/10/66
Analyzed 06/03/67

ID. NO.	306 4
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	3.059
1.0000	5.587
0.5000	14.682
0.2500	26.917
0.1250	7.545
0.0625	4.690
0.0312	7.545
0.0156	1.020
0.0078	0.816
0.0039	2.447
0.0020	3.874
0.0010	5.098
0.0005	0.000
0.0000-	16.721
GRAVEL	3.059
SAND	59.421
SILT	11.827
CLAY	25.693
MEAN (MM)	0.0573
MEAN (PHI)	4.1248
STAN DEV	4.2223
SKEWNESS	0.3745
KURTOSIS	-0.9671
CACO3	62.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814726
Corer Type 6
Sample 131
Latitude 41°38.5'N
Longitude 12°8.7'E
Length 0.0
Penetration 0.0
Depth 140.0
Taken 19/10/66
Analyzed 06/03/67

ID. NO.	306 5
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.274
0.1250	0.274
0.0625	0.274
0.0312	14.567
0.0156	0.821
0.0078	3.286
0.0039	10.679
0.0020	14.239
0.0010	13.965
0.0005	0.000
0.0000-	41.621
GRAVEL	0.000
SAND	0.821
SILT	29.354
CLAY	69.825
MEAN (MM)	0.0019
MEAN (PHI)	9.0591
STAN DEV	3.5528
SKEWNESS	-0.3461
KURTOSIS	-0.6993
CACO3	30.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814726
Corer Type 6
Sample 134
Latitude 40°55.9'N
Longitude 13°44.9'E
Length 0.0
Penetration 0.0
Depth 219.0
Taken 18/10/66
Analyzed 06/03/67

ID. NO.	306 6
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.000
0.1250	0.000
0.0625	0.000
0.0312	9.819
0.0156	2.089
0.0078	2.089
0.0039	4.875
0.0020	13.579
0.0010	15.320
0.0005	0.000
0.0000-	52.228
GRAVEL	0.000
SAND	0.000
SILT	18.872
CLAY	81.128
MEAN (MM)	0.0012
MEAN (PHI)	9.6741
STAN DEV	2.3166
SKEWNESS	-0.5361
KURTOSIS	-0.0145
CACO3	22.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814726
Corer Type 6
Sample 146
Latitude 42°13.0'N
Longitude 11°28.6'E
Length 0.0
Penetration 0.0
Depth 135.0
Taken 20/10/66
Analyzed 06/03/67

ID. NO.	306 7
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.000
0.1250	0.000
0.0625	0.000
0.0312	23.033
0.0156	0.574
0.0078	2.872
0.0039	7.160
0.0020	11.200
0.0010	14.072
0.0005	0.000
0.0000-	41.068
GRAVEL	0.000
SAND	0.000
SILT	33.659
CLAY	66.341
MEAN (MM)	0.0022
MEAN (PHI)	8.8050
STAN DEV	2.7690
SKEWNESS	-0.2592
KURTOSIS	-1.2564
CACO3	26.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814726
Corer Type 6
Sample 147
Latitude 42°10.8'N
Longitude 11°20.4'E
Length 0.0
Penetration 0.0
Depth 215.0
Taken 20/10/66
Analyzed 06/03/67

ID. NO.	306 8
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.473
0.1250	0.473
0.0625	0.473
0.0312	3.409
0.0156	0.473
0.0078	1.420
0.0039	9.943
0.0020	14.678
0.0010	17.045
0.0005	0.000
0.0000-	51.610
GRAVEL	0.000
SAND	1.420
SILT	15.246
CLAY	83.333
MEAN (MM)	0.0011
MEAN (PHI)	9.8551
STAN DEV	2.0601
SKEWNESS	-0.6518
KURTOSIS	1.6365
CACO3	30.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814726
Corer Type 6
Sample 153
Latitude 41°12.3'N
Longitude 12°38.1'E
Length 0.0
Penetration 0.0
Depth 200.0
Taken 19/10/66
Analyzed 06/03/67

ID. NO.	306 9
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	1.619
0.1250	2.860
0.0625	2.428
0.0312	28.602
0.0156	3.238
0.0078	1.619
0.0039	4.047
0.0020	9.984
0.0010	10.793
0.0005	0.000
0.0000-	34.808
GRAVEL	0.000
SAND	6.908
SILT	37.507
CLAY	55.586
MEAN (MM)	0.0041
MEAN (PHI)	7.9317
STAN DEV	3.2126
SKEWNESS	-0.1030
KURTOSIS	-1.4986
CACO3	37.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruiss
Cruise 814726
Corer Type 6
Sample 172
Latitude 41°23.3'N
Longitude 12°20.9'E
Length 0.0
Penetration 0.0
Depth 155.0
Taken 19/10/66
Analyzed 06/03/67

ID. NO.	306 10
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.413
0.2500	2.064
0.1250	3.303
0.0625	4.129
0.0312	12.882
0.0156	0.826
0.0078	2.477
0.0039	6.606
0.0020	10.322
0.0010	14.451
0.0005	0.000
0.0000-	42.527
GRAVEL	0.000
SAND	9.909
SILT	22.791
CLAY	67.300
MEAN (MM)	0.0024
MEAN (PHI)	8.6825
STAN DEV	3.1203
SKEWNESS	-0.3939
KURTOSIS	-0.6865
CACO3	38.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814726
Corer Type 6
Sample 179
Latitude 42°8.8'N
Longitude 10°8.5'E
Length 0.0
Penetration 0.0
Depth 240.0
Taken 20/10/66
Analyzed 06/03/67

ID. NO.	306 11
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.389
1.0000	0.389
0.5000	2.140
0.2500	8.366
0.1250	11.673
0.0625	10.311
0.0312	14.981
0.0156	0.973
0.0078	1.751
0.0039	4.669
0.0020	7.198
0.0010	9.144
0.0005	0.000
0.0000-	28.016
GRAVEL	0.389
SAND	32.879
SILT	22.374
CLAY	44.358
MEAN (MM)	0.0098
MEAN (PHI)	6.6751
STAN DEV	3.8519
SKEWNESS	0.0041
KURTOSIS	-1.5197
CACO3	54.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814726
Corer Type 6
Sample 182
Latitude 41°49.4'N
Longitude 11°52.8'E
Length 0.0
Penetration 0.0
Depth 275.0
Taken 19/10/66
Analyzed 06/03/67

ID. NO.	306 12
INTERVAL	0.0- 0.0
PM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.000
0.1250	0.000
0.0625	0.000
0.0312	24.191
0.0156	1.136
0.0078	4.259
0.0039	6.530
0.0020	10.505
0.0010	12.493
0.0005	0.000
0.0000-	40.886
GRAVEL	0.000
SAND	0.000
SILT	36.116
CLAY	63.884
MEAN (MM)	0.0024
MEAN (PHI)	8.6993
STAN DEV	2.8237
SKEWNESS	-0.2178
KURTOSIS	-1.3838
CACO3	28.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

VIGOR

Cruise 814736
Corer Type 0
Sample 102
Latitude 41°40.8'N
Longitude 11°50.9'E
Length 0.0
Penetration 0.0
Depth 228.0
Taken 19/10/66
Analyzed 03/03/67

ID. NO.	305 1
INTERVAL	0.0- 0.0

MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.000
0.1250	0.000
0.0625	0.000
0.0312	13.492
0.0156	4.060
0.0078	6.246
0.0039	12.804
0.0020	10.306
0.0010	11.868
0.0005	0.000
0.0000-	41.224
GRAVEL	0.000
SAND	0.000
SILT	36.602
CLAY	63.398
MEAN (MM)	0.0020
MEAN (PHI)	8.9410
STAN DEV	2.5566
SKEWNESS	-0.2346
KURTOSIS	-1.1596
CACO3	29.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 110
Latitude 40°52.8'N
Longitude 13°51.5'E
Length 0.0
Penetration 0.0
Depth 120.0
Taken 18/10/66
Analyzed 03/03/67

ID. NO.	305 2
INTERVAL	0.0- 0.0

MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.000
0.1250	0.000
0.0625	0.000
0.0312	18.399
0.0156	2.445
0.0078	6.112
0.0039	11.308
0.0020	9.169
0.0010	12.225
0.0005	0.000
0.0000-	40.342
GRAVEL	0.000
SAND	0.000
SILT	38.264
CLAY	61.736
MEAN (MM)	0.0023
MEAN (PHI)	8.7879
STAN DEV	2.6817
SKEWNESS	-0.2141
KURTOSIS	-1.2813
CACO3	24.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 127
Latitude 42°25.0'N
Longitude 10°7.5'E
Length 0.0
Penetration 0.0
Depth 88.0
Taken 20/10/66
Analyzed 03/03/67

ID. NO.	305 3
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	2.923
1.0000	21.086
0.5000	29.019
0.2500	18.789
0.1250	10.647
0.0625	5.010
0.0312	2.714
0.0156	0.418
0.0078	1.461
0.0039	0.626
0.0020	1.253
0.0010	1.461
0.0005	0.000
0.0000-	4.593
GRAVEL	2.923
SAND	84.551
SILT	5.219
CLAY	7.307
MEAN (MM)	0.2912
MEAN (PHI)	1.7797
STAN DEV	2.9443
SKEWNESS	1.0300
KURTOSIS	3.8162
CACO3	88.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 128
Latitude 42°28.5'N
Longitude 10°15.1'E
Length 0.0
Penetration 0.0
Depth 146.0
Taken 20/10/66
Analyzed 03/03/67

ID. NO.	305 4
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.221
0.2500	0.442
0.1250	0.664
0.0625	0.442
0.0312	13.053
0.0156	0.664
0.0078	4.867
0.0039	6.858
0.0020	11.504
0.0010	11.726
0.0005	0.000
0.0000-	49.558
GRAVEL	0.000
SAND	1.770
SILT	25.442
CLAY	72.788
MEAN (MM)	0.0016
MEAN (PHI)	9.2854
STAN DEV	2.6608
SKEWNESS	-0.4590
KURTOSIS	-0.3295
CACO3	28.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 138
Latitude 41°2.5'N
Longitude 13°8.5'E
Length 0.0
Penetration 0.0
Depth 130.0
Taken 18/10/66
Analyzed 03/03/67

ID. NO.	305 5
INTERVAL	0.0- 0.0
MM	PER
4.0000	2.077
2.0000	3.834
1.0000	8.307
0.5000	16.773
0.2500	13.738
0.1250	10.064
0.0625	6.709
0.0312	8.307
0.0156	2.556
0.0078	1.278
0.0039	3.355
0.0020	2.236
0.0010	4.473
0.0005	0.000
0.0000-	16.294
GRAVEL	5.911
SAND	55.591
SILT	15.495
CLAY	23.002
MEAN (MM)	0.0641
MEAN (PHI)	3.9633
STAN DEV	4.2912
SKEWNESS	0.3390
KURTOSIS	-0.9215
CACO3	65.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 157
Latitude 41°32.2'N
Longitude 12°11.7'E
Length 0.0
Penetration 0.0
Depth 229.0
Taken 19/10/66
Analyzed 03/03/67

ID. NO.	305 6
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.259
0.1250	0.518
0.0625	0.518
0.0312	0.052
0.0156	2.330
0.0078	19.938
0.0039	9.322
0.0020	9.581
0.0010	11.652
0.0005	0.000
0.0000-	45.831
GRAVEL	0.000
SAND	1.295
SILT	31.642
CLAY	67.064
MEAN (MM)	0.0015
MEAN (PHI)	9.3524
STAN DEV	3.2508
SKEWNESS	-0.2669
KURTOSIS	-0.7850
CACO3	62.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 158
Latitude 41°57.2'N
Longitude 11°41.0'E
Length 0.0
Penetration 0.0
Depth 201.0
Taken 19/10/66
Analyzed 03/03/67

ID. NO.	305 7
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.000
0.1250	0.000
0.0625	0.000
0.0312	25.373
0.0156	1.131
0.0078	6.332
0.0039	8.820
0.0020	6.784
0.0010	12.890
0.0005	0.000
0.0000-	38.670
GRAVEL	0.000
SAND	0.000
SILT	41.655
CLAY	58.345
MEAN (MM)	0.0027
MEAN (PHI)	8.5253
STAN DEV	2.8481
SKEWNESS	-0.1555
KURTOSIS	-1.4937
CACO3	28.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 175
Latitude 41°10.1'N
Longitude 12°46.0'E
Length 0.0
Penetration 0.0
Depth 365.0
Taken 19/10/66
Analyzed 03/03/67

ID. NO.	305 8
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.283
0.1250	0.283
0.0625	0.000
0.0312	16.997
0.0156	2.266
0.0078	5.382
0.0039	6.516
0.0020	8.215
0.0010	13.598
0.0005	0.000
0.0000-	46.459
GRAVEL	0.000
SAND	0.567
SILT	31.161
CLAY	68.272
MEAN (MM)	0.0019
MEAN (PHI)	9.0722
STAN DEV	2.7266
SKEWNESS	-0.3413
KURTOSIS	-0.9833
CACO3	32.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 180
Latitude 41°19.3'N
Longitude 12°26.2'E
Length 0.0
Penetration 0.0
Depth 201.0
Taken 19/10/66
Analyzed 03/03/67

ID. NO.	305 9
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.242
0.5000	0.483
0.2500	2.415
0.1250	2.899
0.0625	2.657
0.0312	14.251
0.0156	8.696
0.0078	2.899
0.0039	6.763
0.0020	7.246
0.0010	11.594
0.0005	0.000
0.0000-	39.855
GRAVEL	0.000
SAND	8.696
SILT	32.609
CLAY	58.696
MEAN (MM)	0.0031
MEAN (PHI)	8.3188
STAN DEV	3.2113
SKEWNESS	-0.2624
KURTOSIS	-1.0291
CACO3	39.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 184
Latitude 42°20.3'N
Longitude 10°43.5'E
Length 0.0
Penetration 0.0
Depth 256.0
Taken 20/10/66
Analyzed 03/03/67

ID. NO.	305 10
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	1.296
0.1250	2.592
0.0625	3.888
0.0312	11.447
0.0156	5.832
0.0078	4.536
0.0039	8.639
0.0020	7.991
0.0010	10.367
0.0005	0.000
0.0000-	43.413
GRAVEL	0.000
SAND	7.775
SILT	30.454
CLAY	61.771
MEAN (MM)	0.0025
MEAN (PHI)	8.6555
STAN DEV	3.0250
SKEWNESS	-0.3017
KURTOSIS	-0.9917
CACO3	58.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 191
Latitude 42°30.1'N
Longitude 10°50.5'E
Length 0.0
Penetration 0.0
Depth 128.0
Taken 20/10/66
Analyzed 03/03/67

ID. NO.	305 11
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.000
0.1250	0.149
0.0625	0.000
0.0312	0.448
0.0156	4.484
0.0078	11.510
0.0039	14.649
0.0020	15.546
0.0010	12.706
0.0005	0.000
0.0000-	40.508
GRAVEL	0.000
SAND	0.149
SILT	31.091
CLAY	68.759
MEAN (MM)	0.0016
MEAN (PHI)	9.2042
STAN DEV	2.0645
SKEWNESS	-0.1492
KURTOSIS	-1.1759
CACO3	24.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 192
Latitude 42°44.0'N
Longitude 10°36.0'E
Length 0.0
Penetration 0.0
Depth 101.0
Taken 20/10/66
Analyzed 03/03/67

ID. NO.	305 12
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.000
0.1250	0.000
0.0625	0.000
0.0312	7.536
0.0156	4.806
0.0078	6.151
0.0039	11.918
0.0020	13.649
0.0010	13.649
0.0005	0.000
0.0000-	42.291
GRAVEL	0.000
SAND	0.000
SILT	30.411
CLAY	69.589
MEAN (MM)	0.0017
MEAN (PHI)	9.2174
STAN DEV	2.3305
SKEWNESS	-0.2858
KURTOSIS	-0.8849
CACO3	23.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 195
Latitude 41°2.0'N
Longitude 13°32.6'E
Length 0.0
Penetration 0.0
Depth 238.0
Taken 18/10/66
Analyzed 03/03/67

ID. NO.	305 13
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.000
0.2500	0.214
0.1250	0.214
0.0625	0.000
0.0312	16.702
0.0156	2.570
0.0078	5.353
0.0039	5.996
0.0020	10.921
0.0010	11.777
0.0005	0.000
0.0000-	46.253
GRAVEL	0.000
SAND	0.428
SILT	30.621
CLAY	68.951
MEAN (MM)	0.0019
MEAN (PHI)	9.0653
STAN DEV	2.7057
SKEWNESS	-0.2296
KURTOSIS	-1.0102
CACO3	16.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814736
Corer Type 0
Sample 198
Latitude 42°35.6'N
Longitude 10°17.5'E
Length 0.0
Penetration 0.0
Depth 116.0
Taken 20/10/66
Analyzed 03/03/67

ID. NO.	305 14
INTERVAL	0.0- 0.0
MM	PER
4.0000	0.000
2.0000	0.641
1.0000	0.000
0.5000	0.641
0.2500	0.641
0.1250	0.641
0.0625	0.000
0.0312	7.692
0.0156	6.410
0.0078	1.923
0.0039	9.615
0.0020	7.692
0.0010	17.308
0.0005	0.000
0.0000-	46.795
GRAVEL	0.641
SAND	1.923
SILT	25.641
CLAY	71.795
MEAN (MM)	0.0016
MEAN (PHI)	9.2436
STAN DEV	2.7219
SKEWNESS	-0.6017
KURTOSIS	1.0673
CACO3	28.000
ORG CARBON	0.000
COLOR	10YR6/2
DOM MINERAL	
SEC MINERAL	

Cruise 814746
Corer Type 6
Sample 107
Latitude 41°16.0'N
Longitude 12°32.0'E
Length 0.0
Penetration 0.0
Depth 143.3
Taken 19/10/66
Analyzed 06/03/67

ID. NO.	307 1
INTERVAL	0.0- 0.0

MM	PER
4.0000	0.000
2.0000	0.191
1.0000	0.573
0.5000	1.336
0.2500	2.901
0.1250	1.718
0.0625	1.107
0.0312	10.687
0.0156	6.489
0.0078	8.779
0.0039	8.969
0.0020	9.733
0.0010	11.450
0.0005	0.000
0.0000-	36.069
GRAVEL	0.191
SAND	7.634
SILT	34.924
CLAY	57.252
MEAN (MM)	0.0032
MEAN (PHI)	8.2702
STAN DEV	3.1414
SKEWNESS	-0.3333
KURTOSIS	-0.4226
CACO3	36.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814746
Corer Type 6
Sample 136
Latitude 41°52.0'N
Longitude 11°46.0'E
Length 0.0
Penetration 0.0
Depth 164.6
Taken 19/10/66
Analyzed 06/03/67

ID. NO.	307 2
INTERVAL	0.0- 0.0

MM	PER
4.0000	0.000
2.0000	1.161
1.0000	0.581
0.5000	0.000
0.2500	0.581
0.1250	0.581
0.0625	0.581
0.0312	19.861
0.0156	1.161
0.0078	5.226
0.0039	5.807
0.0020	8.130
0.0010	13.937
0.0005	0.000
0.0000-	42.393
GRAVEL	1.161
SAND	2.323
SILT	32.056
CLAY	64.460
MEAN (MM)	0.0025
MEAN (PHI)	8.6463
STAN DEV	3.1230
SKEWNESS	-0.4258
KURTOSIS	-0.0806
CACO3	0.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814746
Corer Type 6
Sample 159
Latitude 41°7.0'N
Longitude 12°53.0'E
Length 0.0
Penetration 0.0
Depth 164.6
Taken 18/10/66
Analyzed 06/03/67

ID. NO.	307 3
INTERVAL	0.0- 0.0

MM	PER
4.0000	0.000
2.0000	3.206
1.0000	3.006
0.5000	7.615
0.2500	13.627
0.1250	12.024
0.0625	7.816
0.0312	15.431
0.0156	0.601
0.0078	1.804
0.0039	4.609
0.0020	1.202
0.0010	6.613
0.0005	0.000
0.0000-	22.445

GRAVEL	3.206
SAND	44.088
SILT	22.445
CLAY	30.261
MEAN (MM)	0.0262
MEAN (PHI)	5.2555
STAN DEV	4.2042
SKEWNESS	0.1808
KURTOSIS	-1.2904
CACO3	56.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

Cruise 814746
Corer Type 6
Sample 161
Latitude 41°0.0
Longitude 13°39.0'E
Length 0.0
Penetration 0.0
Depth 137.2
Taken 18/10/66
Analyzed 06/03/67

ID. NO.	307 4
INTERVAL	0.0- 0.0

MM	PER
4.0000	0.000
2.0000	0.000
1.0000	0.000
0.5000	0.256
0.2500	0.513
0.1250	1.026
0.0625	2.308
0.0312	24.359
0.0156	0.513
0.0078	2.564
0.0039	2.821
0.0020	6.667
0.0010	11.026
0.0005	0.000
0.0000-	47.949

GRAVEL	0.000
SAND	4.103
SILT	30.256
CLAY	65.641
MEAN (MM)	0.0023
MEAN (PHI)	8.7462
STAN DEV	3.1306
SKEWNESS	-0.2987
KURTOSIS	-1.2597
CACO3	25.000
ORG CARBON	0.000
COLOR	10YR5/2
DOM MINERAL	
SEC MINERAL	

APPENDIX C

Water Transparency and Color Data

LATITUDE	LONGITUDE	LOCAL TIME	DATE	SECCHI DISC *		FOREL COLOR
				WHITE	BLACK	
USS VALOR (MSO 472)						
41°38.5'N	12°08.1'E	1015	19 Oct	23	10	3
41°49.4'N	11°52.8'E	1321	19 Oct	6	4.5	4
42°13.0'N	11°26.8'E	1135	20 Oct	18	8	3
42°10.8'N	11°20.4'E	1400	20 Oct	17	8	4
USS VIGOR (MSO 473)						
40°33.7'N	14°01.0'E	1235	18 Oct	14.5	5.5	4
41°40.8'N	11°50.9'E	1230	19 Oct	8.5	3.5	4
42°20.3'N	10°43.5'E	1130	20 Oct	16	8	3
42°30.1'N	10°50.5'E	1320	20 Oct	15	10	3
USS VITAL (MSO 474)						
41°01'N	13°39'E	1410	18 Oct	13	9	4
41°41'N	12°04'E	1100	19 Oct	14	7	5

* Depth in Meters

UNCLASSIFIED
Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY *(Corporate author)*

U.S. NAVAL OCEANOGRAPHIC OFFICE

2a. REPORT SECURITY CLASSIFICATION

Unclassified

2b. GROUP

3. REPORT TITLE

PROJECT FLOOD DATA REPORT, TYRRHENIAN SEA, OCTOBER 1968

4. DESCRIPTIVE NOTES *(Type of report and inclusive dates)*

Informal Report 18 to 21 October 1966

5. AUTHOR(S) *(First name, middle initial, last name)*

ATWOOD S. BARWICK

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1969	53	4

8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO. 104-01	IR No. 69-18
c.	9b. OTHER REPORT NO(S) *(Any other numbers that may be assigned this report)*
d.	

10. DISTRIBUTION STATEMENT

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11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
	U.S. Naval Oceanographic Office

13. ABSTRACT

Mine Division 81 collected oceanographic data in the Tyrrhenian Sea from 18 to 21 October 1966 in support of Project FLOOD. The data included serial-depth temperatures and salinities at 36 stations, 31 bottom sediment samples, 10 water transparency and color observations, and 300 miles of bathymetric soundings.

An evaluation of the data showed that a substantial amount of good quality data was obtained by Mine Division 81. These data are a useful contribution to the knowledge of the marine environment of the Tyrrhenian Sea and will be available to agencies and institutions through the National Oceanographic Data Center.

DD FORM 1 NOV 65 1473 (PAGE 1)

S/N 0101-807-6801

UNCLASSIFIED
Security Classification

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
PROJECT FLOOD						
OCEANOGRAPHIC DATA						
TYRRHENIAN SEA						
USS VALOR (MSO 472)						
USS VIGOR (MSO 473)						
USS VITAL (MSO 474)						